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	L #	Hits	Search Text	DBs	Time Stamp
1	L3	14987	biolumines$ or fluorescen$ near4 protein$1 or luciferase$1 or photoprotein$1	USPAT; US-PGPUB	2003/02/24 15:09
2	L4	134615	bubble$	USPAT; US-PGPUB	2003/02/24 15:10
3	L5	878	3 and 4	USPAT; US-PGPUB	2003/02/24 15:10
4	L6	15	3 same 4	USPAT; US-PGPUB	2003/02/24 17:01
5	L7	68310	toy or novelty	USPAT; US-PGPUB	2003/02/24 15:40
6	L8	30	5 and 7	USPAT; US-PGPUB	2003/02/24 15:40
7	L9	17	3 same 7	USPAT; US-PGPUB	2003/02/24 17:01
8	L10	20	3 and toy	USPAT; US-PGPUB	2003/02/24 17:09
9	L11	13	10 not 8	USPAT; US-PGPUB	2003/02/24 17:12

PGPUB-DOCUMENT-NUMBER: 20020160032

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020160032 A1

TITLE: Manufacture of bone graft substitutes

PUBLICATION-DATE: October 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Long, Marc	Memphis	TN	US	
Cooper, Michael B.	Memphis	TN	US	
Kinnane, Keith M.	Bartlett	TN	US	
Allen, Trevor	York	TN	GB	
Schryver, Jeff	Cordova		US	

APPL-NO: 09/ 792681

DATE FILED: February 23, 2001

US-CL-CURRENT: 424/423,264/109

ABSTRACT:

The present invention is directed to methods and compositions for manufacturing a bone graft substitute. A powder compaction process is utilized to generate a shaped product comprised of a granulated bone material, such as demineralized bone matrix. In addition, a processing aid is utilized to facilitate compaction of the granulated bone material and for release of the product from the die.

---------- KWIC ---------

Detail Description Paragraph - DETX:

[0055] The term "JAX.TM." as used herein is defined as a bone graft substitute particle which generally has the shape of a **toy** jack. In a specific embodiment, it is a three-dimensional six-armed star shape.

Detail Description Paragraph - DETX:

[0072] In a specific embodiment, the bone material of the present invention is colored to make it more visible. In another specific embodiment, differently shaped BGS of the present invention are denoted with different colors for better differentiation of the particles. In another specific embodiment, the

particles are coated or have contained within them an agent such as green **fluorescent protein or blue fluorescent protein to make them fluorescent** and therefore more visible.

PGPUB-DOCUMENT-NUMBER: 20020146807

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020146807 A1

TITLE: Novel polypeptides and nucleic acids encoding same

PUBLICATION-DATE: October 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Li, Li	Cheshire	CT	US	
Prayaga, Sudhirdas K.	O'Fallon	MO	US	
Padigaru, Muralidhara	Branford	CT	US	
MacDougall, John R.	Hamden	CT	US	
Spytek, Kimberly Ann	New Haven	CT	US	
Tchernev, Velizar T.	Branford	CT	US	
Vernet, Corine A. M.	North Branford	CT	US	

APPL-NO: 09/ 771730

DATE FILED: January 29, 2001

RELATED-US-APPL-DATA:

non-provisional-of-provisional 60178413 20000127 US
non-provisional-of-provisional 60178371 20000127 US
non-provisional-of-provisional 60178408 20000127 US
non-provisional-of-provisional 60178370 20000127 US
non-provisional-of-provisional 60178406 20000127 US
non-provisional-of-provisional 60178414 20000127 US
non-provisional-of-provisional 60178409 20000127 US
non-provisional-of-provisional 60180634 20000207 US
non-provisional-of-provisional 60220516 20000724 US
non-provisional-of-provisional 60221408 20000728 US
non-provisional-of-provisional 60221943 20000731 US
non-provisional-of-provisional 60257599 20001221 US
non-provisional-of-provisional 60260290 20010108 US

US-CL-CURRENT: 435/252.1,435/7.2 ,530/350

ABSTRACT:

The present invention provides novel isolated NOVX polynucleotides and polypeptides encoded by the NOVX polynucleotides. Also provided are the antibodies that immunospecifically bind to a NOVX polypeptide or any derivative, variant, mutant or fragment of the NOVX polypeptide, polynucleotide or antibody. The invention additionally provides methods in which the NOVX polypeptide, polynucleotide and antibody are utilized in the detection and

treatment of a broad range of pathological states, as well as to other uses.

RELATED APPLICATIONS

[0001] This application claims priority to, 60/178,413, filed Jan. 27, 2000; 60/178,371, filed Jan. 27, 2000; 60/178,408, filed Jan. 27, 2000; 60/178,370, filed Jan. 27, 2000; 60/178,406, filed Jan. 27, 2000; 60/178,414, filed Jan. 27, 2000; 60/178,409, filed Jan. 27, 2000; 60/180,634, filed Feb. 7, 2000; 60/220,516, filed Jul. 24, 2000; 60/221,408, filed Jul. 28, 2000; 60/221,943, filed Jul. 31, 2000; 60/257,599, filed Dec. 21, 2000; and 60/260,290, filed Jan. 8, 2001, which are incorporated herein by reference in their entirety.

---------- KWIC ---------

Detail Description Paragraph - DETX:

[0030] Issel-Tarver and Rine (1996) characterized 4 members of the canine olfactory receptor gene family. The 4 subfamilies comprised genes expressed exclusively in olfactory epithelium. Analysis of large DNA fragments using Southern blots of pulsed field gels indicated that subfamily members were clustered together, and that two of the subfamilies were closely linked in the dog genome. Analysis of the four olfactory receptor gene subfamilies in 26 breeds of dog provided evidence that the number of genes per subfamily was stable in spite of differential selection on the basis of olfactory acuity in scent hounds, sight hounds, and **toy** breeds.

Detail Description Paragraph - DETX:

[0565] In one embodiment, an assay is a cell-based assay in which a cell which expresses a membrane-bound form of NOVX protein, or a biologically-active portion thereof, on the cell surface is contacted with a test compound and the ability of the test compound to bind to a NOVX protein determined. The cell, for example, can be of mammalian origin or a yeast cell. Determining the ability of the test compound to bind to the NOVX protein can be accomplished, for example, by coupling the test compound with a radioisotope or enzymatic label such that binding of the test compound to the NOVX protein or biologically-active portion thereof can be determined by detecting the labeled compound in a complex. For example, test compounds can be labeled with .sup.125I, .sup.35S, .sup.14C, or .sup.3H, either directly or indirectly, and the radioisotope detected by direct counting of radioemission or by scintillation counting. Alternatively, test compounds can be enzymatically-labeled with, for example, horseradish peroxidase, alkaline phosphatase, or **luciferase,** and the enzymatic label detected by determination of conversion of an appropriate substrate to product. In one embodiment, the assay comprises contacting a cell which expresses a membrane-bound form of NOVX protein, or a biologically-active portion thereof, on the cell surface with a known compound which binds NOVX to form an assay mixture, contacting the assay mixture with a test compound, and determining the ability of the test compound to interact with a NOVX protein, wherein determining the ability of the test compound to interact with a NOVX protein comprises determining the ability of

the test compound to preferentially bind to NOVX protein or a biologically-active portion thereof as compared to the known compound.

Detail Description Paragraph - DETX:

[0567] Determining the ability of the NOVX protein to bind to or interact with a NOVX target molecule can be accomplished by one of the methods described above for determining direct binding. In one embodiment, determining the ability of the NOVX protein to bind to or interact with a NOVX target molecule can be accomplished by determining the activity of the target molecule. For example, the activity of the target molecule can be determined by detecting induction of a cellular second messenger of the target (i.e. intracellular Ca.sup.2+, diacylglycerol, IP.sub.3, etc.), detecting catalytic/enzymatic activity of the target an appropriate substrate, detecting the induction of a reporter gene (comprising a NOVX-responsive regulatory element operatively linked to a nucleic acid encoding a detectable marker, e.g., **luciferase**), or detecting a cellular response, for example, cell survival, cellular differentiation, or cell proliferation.

Detail Description Paragraph - DETX:

[0593] An antibody specific for a protein of the invention can be used to isolate the protein by standard techniques, such as immunoaffinity chromatography or immunoprecipitation. Such an antibody can facilitate the purification of the natural protein antigen from cells and of recombinantly produced antigen expressed in host cells. Moreover, such an antibody can be used to detect the antigenic protein (e.g., in a cellular lysate or cell supernatant) in order to evaluate the abundance and pattern of expression of the antigenic protein. Antibodies directed against the protein can be used diagnostically to monitor protein levels in tissue as part of a clinical testing procedure, e.g., to, for example, determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling (i.e., physically linking) the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, **bioluminescent** materials, and radioactive materials. Examples of suitable enzymes include horseradish peroxidase, alkaline phosphatase, .beta.-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidinibiotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of **bioluminescent** materials include **luciferase,** luciferin, and aequorin, and examples of suitable radioactive material include .sup.125I, .sup.131I, .sup.35S or .sup.3H.

PGPUB-DOCUMENT-NUMBER: 20020065405

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020065405 A1

TITLE: Novel polypeptides and nucleic acids encoding same

PUBLICATION-DATE: May 30, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Padigaru, Muralidhara	Bronx	NY	US	
Prayaga, Sudhirdas	O'Fallon	MO	US	
Taupier, Raymond J. JR.	East Haven	CT	US	
Mishra, Vishnu	Branford	CT	US	
Tchernev, Velizar	Branford	CT	US	
Spytek, Kimberly	New Haven	CT	US	
Li, Li	Chesire	CT	US	

APPL-NO: 09/ 761288

DATE FILED: January 16, 2001

RELATED-US-APPL-DATA:

non-provisional-of-provisional 60177839 20000125 US

US-CL-CURRENT: 536/23.1,424/184.1 ,530/300 ,530/350

ABSTRACT:

The present invention provides novel isolated NOVX polynucleotides and polypeptides encoded by the NOVX polynucleotides. Also provided are the antibodies that immunospecifically bind to a NOVX polypeptide or any derivative, variant, mutant or fragment of the NOVX polypeptide, polynucleotide or antibody. The invention additionally provides methods in which the NOVX polypeptide, polynucleotide and antibody are utilized in the detection and treatment of a broad range of pathological states, as well as to other uses.

RELATED APPLICATIONS

[0001] This application claims priority to U.S. Ser. No. 60/177,839, filed Jan. 25, 2000; U.S. Ser. No. 60/176,134, filed Jan. 14, 2000; U.S. Ser. No. 60/175,989, filed Jan. 13, 2000; U.S. Ser. No. 60/218,324, filed Jul. 14, 2000; U.S. Ser. No. 60/220,253, filed Jul. 24, 2000; U.S. Ser. No. 60/178,191, filed Jan. 26, 2000; U.S. Ser. No. 60/178,227, filed Jan. 26, 2000; and U.S. Ser. No. 60/220,590, filed Jul. 25, 2000, which are incorporated herein by reference in their entirety.

---------- KWIC ---------

Summary of Invention Paragraph - BSTX:

[0030] Issel-Tarver and Rine (1996) characterized 4 members of the canine olfactory receptor gene family. The 4 subfamilies comprised genes expressed exclusively in olfactory epithelium. Analysis of large DNA fragments using Southern blots of pulsed field gels indicated that subfamily members were clustered together, and that two of the subfamilies were closely linked in the dog genome. Analysis of the four olfactory receptor gene subfamilies in 26 breeds of dog provided evidence that the number of genes per subfamily was stable in spite of differential selection on the basis of olfactory acuity in scent hounds, sight hounds, and **toy** breeds.

Summary of Invention Paragraph - BSTX:

[0333] In one embodiment, an assay is a cell-based assay in which a cell which expresses a membrane-bound form of NOVX protein, or a biologically-active portion thereof, on the cell surface is contacted with a test compound and the ability of the test compound to bind to a NOVX protein determined. The cell, for example, can be of mammalian origin or a yeast cell. Determining the ability of the test compound to bind to the NOVX protein can be accomplished, for example, by coupling the test compound with a radioisotope or enzymatic label such that binding of the test compound to the NOVX protein or biologically-active portion thereof can be determined by detecting the labeled compound in a complex. For example, test compounds can be labeled with .sup.125I, .sup.35S, .sup.14C, or .sup.3H, either directly or indirectly, and the radioisotope detected by direct counting of radioemission or by scintillation counting. Alternatively, test compounds can be enzymatically-labeled with, for example, horseradish peroxidase, alkaline phosphatase, or **luciferase,** and the enzymatic label detected by determination of conversion of an appropriate substrate to product. In one embodiment, the assay comprises contacting a cell which expresses a membrane-bound form of NOVX protein, or a biologically-active portion thereof, on the cell surface with a known compound which binds NOVX to form an assay mixture, contacting the assay mixture with a test compound, and determining the ability of the test compound to interact with a NOVX protein, wherein determining the ability of the test compound to interact with a NOVX protein comprises determining the ability of the test compound to preferentially bind to NOVX protein or a biologically-active portion thereof as compared to the known compound.

Summary of Invention Paragraph - BSTX:

[0335] Determining the ability of the NOVX protein to bind to or interact with a NOVX target molecule can be accomplished by one of the methods described above for determining direct binding. In one embodiment, determining the ability of the NOVX protein to bind to or interact with a NOVX target molecule can be accomplished by determining the activity of the target molecule. For example, the activity of the target molecule can be determined by detecting

induction of a cellular second messenger of the target (i.e. intracellular Ca.sup.2+, diacylglycerol, IP.sub.3, etc.), detecting catalytic/enzymatic activity of the target an appropriate substrate, detecting the induction of a reporter gene (comprising a NOVX-responsive regulatory element operatively linked to a nucleic acid encoding a detectable marker, e.g., **luciferase**), or detecting a cellular response, for example, cell survival, cellular differentiation, or cell proliferation.

Summary of Invention Paragraph - BSTX:

[0362] An antibody specific for a protein of the invention can be used to isolate the protein by standard techniques, such as immunoaffinity chromatography or immunoprecipitation. Such an antibody can facilitate the purification of the natural protein antigen from cells and of recombinantly produced antigen expressed in host cells. Moreover, such an antibody can be used to detect the antigenic protein (e.g., in a cellular lysate or cell supernatant) in order to evaluate the abundance and pattern of expression of the antigenic protein. Antibodies directed against the protein can be used diagnostically to monitor protein levels in tissue as part of a clinical testing procedure, e.g., to, for example, determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling (i.e., physically linking) the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, **bioluminescent** materials, and radioactive materials. Examples of suitable enzymes include horseradish peroxidase, alkaline phosphatase, .beta.-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of **bioluminescent** materials include **luciferase,** luciferin, and aequorin, and examples of suitable radioactive material include .sup.125I, .sup.131I, .sup.35S or .sup.3H.

PGPUB-DOCUMENT-NUMBER: 20020055147

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020055147 A1

TITLE: Human chemokine beta-13

PUBLICATION-DATE: May 9, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Li, Haodong	Gaithersburg	MD	US	
Seibel, George	Saint Davis	PA	US	
Ullrich, Stephen	Rockville	MD	US	
Luscinskas, Francis W.	Milton	MA	US	

APPL-NO: 09/ 908599

DATE FILED: July 20, 2001

RELATED-US-APPL-DATA:

child 09908599 A1 20010720 parent continuation-of 09432768 19991103 US ABANDONED child 09432768 19991103 US parent continuation-in-part-of 08986188 19971205 US ABANDONED child 08986188 19971205 US parent continuation-in-part-of 08464594 19950605 US PENDING non-provisional-of-provisional 60032432 19961205 US

US-CL-CURRENT: 435/69.5,435/325 ,530/351 ,536/23.5

ABSTRACT:

The present invention relates to a novel CK.beta.-13 protein which is a member of the chemokine family. In particular, isolated nucleic acid molecules are provided encoding the human CK.beta.-13 protein. CK.beta.-13 polypeptides are also provided as are vectors, host cells and recombinant methods for producing the same. The invention further relates to screening methods for identifying agonists and antagonists of CKCK.beta.-13 activity. Also provided are diagnostic methods for detecting immune system-related disorders and therapeutic methods for treating immune system-related disorders.

[0001] This application claims benefit of 35 U.S.C. section 120 based on copending U.S. application Ser. No. 08/986,188 filed Dec. 5, 1997, which claimed benefit of 35 U.S.C. section 119(e) based on U.S. Provisional Application Serial No. 60/032,432 filed Dec. 5, 1996. U.S. application Ser. No. 08/986,188 and U.S. Provisional Patent Application Serial No. 60/032,432 are hereby incorporated by reference herein in their entirety.

---------- KWIC ---------

Detail Description Paragraph - DETX:

[0122] Additional preferred polypeptide fragments comprise, or alternatively consist of, the amino acid sequence of residues: M-1 to L-15; A-2 to A-16; R-3 to V-17; L-4 to A-18; Q-5 to L-19; T-6 to Q-20; A-7 to A-21; L-8 to T-22; L-9 to E-23; V-10 to A-24; V-11 to G-25;L-12 toP-26;V-13 **toY**-27;L-14to G-28; L-15 toA-29;A-16 to N-30; V-17 to M-31; A-18 to E--32; L-19 to D-33; Q-20 to S-34; A-21 to V-35; T-22 to C-36; E-23 to C-37; A-24 to R-38; G-25 to D-39; P-26 **toY**-40; Y-27 to V-41; G-28 to R-42; A-29 to H-43; N-30 to R-44; M-31 to L-45; E-32 to P-46; D-33 to L-47; S-34 to R-48; V-35 toV-49; C-36 to V-50; C-37 to K-51; R-38 to H-52; D-39 to F-53; Y-40 to Y-54; V-41 to W-55; R-42 to T-56; H-43 to S-57; R-44 to D-58; L-45 to S-59; P-46 to C-60; L-47 to P-61; R-48 to R-62;V-49 to P-63; V-50 to G-64; K-51 to V-65; H-52 to V-66; F-53 to L-67; Y-54 to L-68; W-55 to T-69; T-56 to F-70; S-57 to R-71; D-58 to D-72; S-59 to K-73; C-60 to E-74; P-61 to I-75; R-62 to C-76; P-63 to A-77; G-64 to D-78; V-65 to P-79; V-66 to R-80; L-67 to V-81; L-68 to P-82; T-69 to W-83; F-70 to V-84; R-71 to K-85; D-72 to M-86; K-73 to I-87; E-74 to L-88; 1-75 to S-89; C-76 to K-90; A-77 to L-91; D-78 to S-92; and/or P-79 to Q-93 of SEQ ID NO:2. These polypeptide fragments may retain the biological activity of the CK.beta.-13 polypeptides of the invention and may be useful to generate antibodies, as described further below. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

Detail Description Paragraph - DETX:

[0417] With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol acetyltransferase (CAT), **luciferase,** alkaline phosphatase, B-galactosidase, green **fluorescent protein** (GFP), or any protein detectable by an antibody.

PGPUB-DOCUMENT-NUMBER: 20020025553

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020025553 A1

TITLE: Transforming growth factor alpha HIII

PUBLICATION-DATE: February 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Wei, Ying-Fei	Berkeley	CA	US	

APPL-NO: 09/ 726348

DATE FILED: December 1, 2000

RELATED-US-APPL-DATA:

child 09726348 A1 20001201 parent continuation-in-part-of 08778545 19970103 US PENDING non-provisional-of-provisional 60011136 19960104 US
non-provisional-of-provisional 60168387 19991202 US

US-CL-CURRENT: 435/69.1,435/325 ,435/7.1 ,530/399 ,536/23.5

ABSTRACT:

The present invention relates to a novel human protein called Transforming Growth Factor Alpha III, and isolated polynucleotides encoding this protein. Also provided are vectors, host cells, antibodies, and recombinant methods for producing this human protein. The invention further relates to diagnostic and therapeutic methods useful for diagnosing and treating disorders related to this novel human protein.

[0001] This application is a continuation-in-part of application Ser. No. 08/778,545, filed Jan. 3, 1997, which claims priority under 35 U.S.C. .sctn.119(e) to application Ser. No. 60/011,136, filed Jan. 4, 1996, each of which is hereby incorporated by reference in its entirety. In addition, this application claims priority under 35 U.S.C. .sctn.119(e) to application Ser. No. 60/168,387, filed Dec. 2, 1999, which is hereby incorporated by reference in its entirety.

---------- KWIC ---------

Detail Description Paragraph - DETX:

[0123] Additional preferred polypeptide fragments comprise, or alternatively

consist of, the amino acid sequence of residues: M-1 to W-15; A-2 to A-16; P-3 to A-17; H-4 to A-18; G-5 toL-19; P-6 to L-20; G-7 to L-21; S-8 to A-22; L-9 to L-23; T-10 to G-24; T-11 to V-25; L-12 to E-26; V-13 to R-27; P-14 to A-28; W-15 to L-29; A-16 to A-30;A-17 to L-31; A-18 to P-32; L-19 to E-33; L-20 to 1-34; L-21 to C-35; A-22 to T-36; L-23 to Q-37; G-24 to C-38; V-25 to P-39; E-26 to G-40; R-27 to S-41;A-28 to V-42; L-29 to Q-43; A-30 to N-44; L-31 to L-45; P-32 to S-46; E-33 to K-47; 1-34 to V-48; C-35 to A-49; T-36 to F-50; Q-37 to Y-51; C-38 to C-52;P-39 to K-53; G-40 to T-54; S-41 to T-55; V-42 to R-56; Q-43 to E-57; N-44 to L-58; L-45 to M-59; S-46 to L-60; K-47 to H-61; V-48 to A-62; A-49 to R-63; F-50 to C-64; Y-51 to C-65; C-52 to L-66; K-53 to N-67; T-54 to Q-68; T-55 to K-69; R-56 to G-70; E-57 to T-71; L-58 to 1-72; M-59 to L-73; L-60 to G-74;H-61 to L-75; A-62 to D-76; R-63 to L-77; C-64 to Q-78; C-65 to N-79; L-66 to C-80; N-67 to S-81; Q-68 to L-82; K-69 to E-83; G-70 to D-84; T-71 to P-85; 1-72 to G-86; L-73 to P-87; G-74 to N-88; L-75 to F-89; D-76 to H-90; L-77 to Q-91; Q-78 to A-92; N-79 to H-93; C-80 to T-94; S-81 to T-95; L-82 to V-96; E-83 to I-97; D-84 to 1-98; P-85 to D-99; G-86 to L-100; P-87 to Q-101; N-88 to A-102; F-89 to N-103; H-90 to P-104; Q-91 to L-105; A-92 to K-106; H-93to G-107; T-94 to D-108; T-95 to L-109; V-96 to A-110; 1-97 to N-111; I-98 to T-112; D-99 to F-113; L-100 to R-114; Q-101 to G-115; A-102 to F-116; N-103 to T-117; P-104 to Q-118; L-105 to L-119; K-106 to Q-120; G-107 to T-121; D-108 to L-122; L-109 to I-123; A-110 to L-124; N-111 to P-125; T-112 to Q-126; F-113 to H-127; R-114 to V-128; G-115 to N-129; F-116 to C-130; T-117 to P-131; Q-118 to G-132; L-119 to G-133; Q-120 to I-134; T-121 toN-135; L-122 to A-136; I-123 to W-137; L-124 to N-138; P-125 to T-139; Q-126 to I-140; H-127 to T-141; V-128 to S-142; N-129 to Y-143; C-130 to I-144;P-131 to D-145; G-132 to N-146; G-133 to Q-147; I-134 to I-148; N-135 to C-149; A-136 to Q-150; W-137 to G-151; N-138 to Q-152; T-139 to K-153;I-140 to N-154; T-141 to L-155; S-142 to C-156; Y-143 to N-157; I-144 to N-158; D-145 to T-159; N-146 to G-160; Q-147 to D-161; I-148 to P-162; C-149 to E-163; Q-150 to M-164; G-151 to C-165; Q-152 to P-166; K-153 to E-167; N-154 to N-168; L-155 to G-169; C-156 to S-170; N-157 to C-171; N-158 toV-172; T-159 to P-173; G-160 to D-174; D-161 to G-175; P-162 to P-176; E-163 to G-177; M-164 to L-178; C-165 to L-179; P-166 to Q-180; E-167 toC-181; N-168 to V-182; G-169 to C-183; S-170 to A-184; C-171 to D-185; V-172 to G-186; P-173 to F-187; D-174 to H-188; G-175 to G-189; P-176 **toY**-190; G-177 to K-191; L-178 to C-192; L-179 to M-193; Q-180 to R-194; C-181 to Q-195; V-182 to G-196; C-183 to S-197; A-184 to F-198; D-185 to S-199; G-186 to L-200; F-187 to L-201; H-188 to M-202; G-189 to F-203; Y-190 to F-204; K-191 to G-205; C-192 to 1-206; M-193 to L-207; R-194 to G-208; Q-195 to A-209; G-196 to T-210; S-197 to T-211; F-198 to L-212; S-199 to S-213; L-200 to V-214; L-201 to S-215; M-202 to I-216; F-203 to L-217; F-204 to L-218; G-205 to W-219; I-206 to A-220; L-207 to T-221; G-208 to Q-222; A-209 to R-223; T-210 to R-224; T-211 to K-225; L-212 to A-226; S-213 to K-227; V-214 to T-228; S-215 to S-229 of SEQ ID NO:2. These polypeptide fragments may retain the biological activity of TGF alpha HIII polypeptides of the invention and/or may be useful to generate or screen for antibodies, as described further below. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

Detail Description Paragraph - DETX:

[0198] The present invention further encompasses antibodies or fragments thereof conjugated to a diagnostic or therapeutic agent. The antibodies can be used diagnostically to, for example, monitor the development or progression of

a tumor as part of a clinical testing procedure to, e.g., determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, **bioluminescent** materials, radioactive materials, positron emitting metals using various positron emission tomographies, and nonradioactive paramagnetic metal ions. The detectable substance may be coupled or conjugated either directly to the antibody (or fragment thereof) or indirectly, through an intermediate (such as, for example, a linker known in the art) using techniques known in the art. See, for example, U.S. Pat. No. 4,741,900 for metal ions which can be conjugated to antibodies for use as diagnostics according to the present invention. Examples of suitable enzymes include horseradish peroxidase, alkaline phosphatase, beta-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of **bioluminescent** materials include **luciferase,** luciferin, and aequorin; and examples of suitable radioactive material include 125I, 131I, 111In or 99Tc.

Detail Description Paragraph - DETX:

[0209] The antibodies of the invention may be assayed for immunospecific binding by any method known in the art. The immunoassays which can be used include but are not limited to competitive and non-competitive assay systems using techniques such as western blots, radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoprecipitation assays, precipitin reactions, gel diffusion precipitin reactions, immunodiffusion assays, agglutination assays, complement-fixation assays, immunoradiometric assays, **fluorescent immunoassays, protein** A immunoassays, to name but a few. Such assays are routine and well known in the art (see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, which is incorporated by reference herein in its entirety). Exemplary immunoassays are described briefly below (but are not intended by way of limitation).

Detail Description Paragraph - DETX:

[0714] With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol acetyltransferase (CAT), **luciferase,** alkaline phosphatase, B-galactosidase, green **fluorescent protein** (GFP), or any protein detectable by an antibody.

PGPUB-DOCUMENT-NUMBER: 20020009455

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020009455 A1

TITLE: DNA encoding a novel PROST 03 polypeptide

PUBLICATION-DATE: January 24, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lau, Ted	Alameda	CA	US	
Lin, Richard J.	Danville	CA	US	
Parkes, Deborah	Hayward	CA	US	
Parry, Gordon	Walnut Creek	CA	US	
Schneider, Douglas W.	Lafayette	CA	US	
Steinbrecher, Renate	Walnut Creek	CA	US	
Heuit, Pamela **Toy** Van	Moraga	CA	US	
Wu, John	Carlisle	MA	US	

APPL-NO: 09/ 838785

DATE FILED: April 20, 2001

RELATED-US-APPL-DATA:

non-provisional-of-provisional 60200065 20000427 US

US-CL-CURRENT: 424/178.1,435/325 ,435/6 ,435/69.1 ,435/7.23 ,530/350

ABSTRACT:

The present invention relates to novel human polypeptides, designated PROST 03, which exhibit an expression pattern showing a high specificity toward prostate tissues, polynucleotides encoding the polypeptides, methods for producing the polypeptides, expression vectors and genetically engineered host cells for expression of the polypeptides. The invention further relates to methods for utilizing the polynucleotides and polypeptides in research, diagnosis, and therapeutic applications.

[0001] This application claims the benefit of U.S. Provisional Application No. 60/200,065, filed Apr. 27, 2000, which is incorporated herein in full by reference.

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INVENTOR - INNM:

Heuit, Pamela **Toy** Van

Detail Description Paragraph - DETX:

[0189] The PROST 03 antibodies of the invention may be labeled with a detectable marker or conjugated to a second molecule, such as a cytotoxic agent, and used for targeting the second molecule to a PROST 03 positive cell (Vitetta, E. S. et al., Immunotoxin Therapy, in DeVita, Jr, V. T. et al., eds, Cancer: Principles and Practice of Oncology, 4.sup.th ed., J. B. Lippincott Co., Philadelphia, 2624-2636, 1993) Examples of cytotoxic agents include, but are not limited to ricin, doxorubicin, daunorubicin, taxol, ethidium bromide, mitomycin, etoposide, tenoposide, vincristine, vinblastine, colchicine, dihydroxy anthracin dione, actinomycin D, diptheria toxin, Pseudomonas exotoxin(PE) A, PE40, abrin, and glucocorticoid and other chemotherapeutic agents, as well as radioisotopes. Suitable detectable markers include, but are not limited to, a radioisotope, a fluorescent compound, a **bioluminescent** compound, chemiluminescent compound, a metal chelator or an enzyme. Suitable radioisotopes include the following: Antimony-124, Antimony-125, Arsenic-74, Barium-103, Barium-140, Berylllium-7, Bismuth-j206, Bismuth-207, Cadmium-109, Cadmium-115m, Calcium-45, Cerium-139, Cerium-141, Cerium-144, Cesium-137, Chromium-51, Cobalt-56, Cobalt-57, Cobalt-58, Cobalt-60, Cobalt-64, Erbium-169, Europium-152, Gadolinium-153, Gold-195, Gold-199, Hafnium-175, Hafnium-181, Indium-11, Iodine-123, Iodine-131, Iridium-192, Iron-55, Iron-59, Krypton-85, Lead-210, Manganese-54, Mercury-197, Mercury-203, Molybdenum-99, Neodymium-147, Neptunium-237, Nickel-63, Niobiumo-95, Osmium-185+191, Palladium-103, Platinum-195m, Praseodymium-143, Promethium-147, Protactinium-233, Radium-2226, Rhenium-186, Rubidium-86, Ruthenium-103, Ruthenium-106, Scandium-44, Scandium-46, Selenium-75, Silver-110m, Silver-11, Sodium-22, Strontium-85, Strontium-89, Strontium-90, Sulfur-35, Tantalum-182, Technetium-99m, Tellurium-125, Tellurium-132, Thallium-204, Thorium-228, Throium-232, Thallium-170, Tin-113, Titanium-44, Tungsten-185, Vanadium-48, Vanadium-49, Ytterbium-169, Yttrium-88, Yttrium-90, Yttrium-91, Zinc-65, and Zirconium-95.

PGPUB-DOCUMENT-NUMBER: 20010036073

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010036073 A1

TITLE: Carvable decorative gourd

PUBLICATION-DATE: November 1, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Trease, Christine K.	Price	UT	US	

APPL-NO: 09/ 838616

DATE FILED: April 19, 2001

RELATED-US-APPL-DATA:

non-provisional-of-provisional 60198429 20000419 US

US-CL-CURRENT: 362/154,362/122 ,362/124 ,362/808

ABSTRACT:

An artificial hollow carvable gourd shaped as a pumpkin, squash, or other fruit or vegetable, having an outer carvable shell, which encases fake "innards and seeds" made of edible candy, and including a prize, contained therein to provide a more realistic gourd container.

RELATED APPLICATIONS

[0001] This application is a continuation-in-part application of the provisional application entitled "Carvable Decorative Gourd", Serial No. 60/1908,429, filed Apr. 19, 2000,

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Summary of Invention Paragraph - BSTX:

[0007] Cited for general interest is Bryan, U.S. Pat. No. 5,876,995, which discloses **bioluminescent** novelty items, which can have a Halloween theme.

Summary of Invention Paragraph - BSTX:

[0008] None of these references provides a decorative container having candy

and **toy** innards, having the weight and feel of a natural pumpkin or guard, which can be carved and decorated after the container is opened. The invention described below provides such an invention.

Detail Description Paragraph - DETX:

[0030] The carvable gourd container 10 thus provides an ideal candy container convertible into a **toy** or novelty item suitable for decorative holiday use or play.

US-PAT-NO: 6518481

DOCUMENT-IDENTIFIER: US 6518481 B1

TITLE: Universal markers of transgenesis

DATE-ISSUED: February 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wimmer; Ernst A.	Bayreuth	N/A	N/A	DE
Berghammer; Andreas J.	Munchen	N/A	N/A	DE
Klingler; Martin	Munchen	N/A	N/A	DE

APPL-NO: 09/ 373129

DATE FILED: August 12, 1999

US-CL-CURRENT: 800/13; 435/320.1 ; 435/455 ; 435/473 ; 536/24.1 ; 800/21

ABSTRACT:

The invention relates to methods, cells and nucleic acids for making transgenic animals. The methods generally comprise introducing into a genome of an animal a genetic construct comprising a transcriptional regulatory element operably linked to a heterologous marker gene encoding a marker, wherein the element drives expression of the marker across genera transgenic in the construct sufficient to visually detect the marker in photoreceptive cells or organs, and selecting for transgenesis by visually detecting the marker in a photoreceptive cell or organ of the animal.

41 Claims, 0 Drawing figures

Exemplary Claim Number: 1

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Brief Summary Text - BSTX:

The subject methods generally comprise (a) introducing into a genome of an animal a genetic construct comprising a transcriptional regulatory element operably linked to a heterologous marker gene encoding a marker, wherein the element drives expression of the marker across genera transgenic in the construct sufficient to visually detect the marker in photoreceptive cells or organs, and (b) selecting for transgenesis by visually detecting the marker in a photoreceptive cell or organ of the animal. In particular embodiments, the construct comprises a vector, such as transposon or retrovirus, particularly a polytropic vector. The construct may integrate into the genome by homologous

or non-homologous recombination. In particular embodiments, the transcriptional regulatory element comprises a binding site selected from a Pax-6 binding site, a Glass binding site, etc., particularly a plurality of P3 sites, and the marker is a **fluorescent protein, particularly a green fluorescent protein** or variant thereof.

Brief Summary Text - BSTX:

To drive marker expression in a series of diverged organisms requires a promoter which is active in a wide range of species. Furthermore, to avoid problems with low expression and the interference of autofluorescence, a regional specific promoter is preferable over a constitutively active one. A wide variety of regulatory elements may be employed, so long as they meet the requisite functional limitations. These may be natural promoter elements, naturally driving gene expression in photoreceptive cells or organs, elements derived from such natural promoter elements by mutational selection or consensus sequences, synthetic elements derived by iterative selection process, e.g. SELEX procedures, etc. In a particular embodiment, the element comprises a binding site selected from a Pax-6, a Pax-6 like binding site such as a twin-of-eyeless (**TOY**) binding site, a Glass binding site, etc. In more particular embodiments, the element comprises a Pax-6 Paired Domain or Homeodomain binding site, more particularly a P3 site, wherein the P3 site comprises the sequence: TAATYNRATTA (SEQ ID NO:01), wherein Y=C or T; R=G or A; N=any nucleotide (Wilson et al., 1993, Genes Dev 7, 2120-34; Czerny and Busslinger, 1995, Mol Cell Biol 15, 2858-71). Tables 1-6 provide other exemplary transcriptional regulatory element binding sites functional in the subject methods. Pax-6 binding sites are of particular interest due to the evolutionary conserved role Pax-6-homologs play in eye development across different phyla (Callaerts et al., 1997, Annu Rev Neurosci 20, 483-532).

Brief Summary Text - BSTX:

The construct includes a marker gene encoding a marker which, when expressed in the transgenic animal, is visually detectable in a photoreceptive cell or organ of the animal. Criteria for marker selection include detectability, physiological and method compatibility, e.g. smaller sized marker genes enable small transposon constructs resulting in high transformation rates. A wide variety of markers may be encoded, including ribozymes or protein enzymes such as galactosidase, **luciferase** (e.g. Wilson and Hastings, 1998, Annu Rev Cell Dev Biol 14, 197-230), etc., and particularly directly detectable **proteins, more particularly fluorescent proteins,** especially commercially available enhanced **fluorescent proteins** (e.g. EGFP, ECFP and EYFP, Clontech Laboratories, Inc.).

Brief Summary Text - BSTX:

Fluorescent proteins may comprise naturally occurring, engineered (i.e., analogs) and/or synthetic sequences. For example, many cnidarians use natural green fluorescent proteins ("GFPs") as energy-transfer acceptors in bioluminescence. Natural GFPs have been isolated from numerous animals,

including the Pacific Northwest jellyfish, Aequorea victoria, the sea pansy, Renilla reniformis, and Phialidium gregarium; Ward et al., Photochem. Photobiol., 35:803-808 (1982); Levine et al., Comp. Biochem. Physiol., 72B:77-85 (1982). In addition, a variety of Aequorea-related fluorescent proteins having useful excitation and emission spectra have been engineered by modifying the amino acid sequence of a naturally occurring GFP from Aequorea victoria (Prasher et al., Gene, 111:229-233 (1992); Heim et al., Proc. Natl. Acad. Sci., USA, 91:12501-04 (1994). Particularly useful are GFPs from or which derive from the jellyfish A. victoria (see e.g. U.S. Pat. No. 5,491,084 for applicable such GFPs) and include variants offering a variety of different excitation and emission wavelengths; see e.g. Heim and Tsein, 1996, Current Biology 6, 178-182. Exemplary amino acid variants include F64L, S65T, Y66W, N146I, M153T, V163A and N212K, and combinations thereof. For example, CFP is the GFP of Aequorea victoria with the following additional mutations: F64L, S65T, Y66W, N146I, M153T, V163A, N212K (Miyawaki et al., 1997, Nature 388:882-7), and YFP is the GFP of A. victoria with the following additional mutations: S65G, V68L, S72A, T203Y (Cubitt et al., 1999, Methods Cell Biol 58, 19-30). Accordingly, in preferred embodiments, the marker is a Aequorea or Aequorea-related fluorescent protein, see U.S. Pat. No. 5,912,137 for applicable sequence, scope, definitions and examples.

Brief Summary Text - BSTX:

Suitable fluorescent proteins may also derive from other sources, and include the yellow fluorescent protein from Vibrio fischeri strain Y-1 (Baldwin et al., Biochemistry (1990) 29:5509-15) which requires flavins as fluorescent co-factors; Peridinin-chlorophyll, a red fluorescing binding protein from the dinoflagellate Symbiodinium sp. (Morris et al., Plant Mol Biol, (1994) 24:673:77); phycobiliproteins from marine cyanobacteria such as Synechococcus, e.g., phycoerythrin and phycocyanin (Wilbanks et al., J. Biol. Chem. (1993) 268:1226-35), yellow to red fluorescing proteins which require phycobilins as fluorescent co-factors.

Brief Summary Paragraph Table - BSTL:

TABLE 7 Exemplary transgenic expression-marker detection systems Vector Element Marker Host Expression hobo 3xP3-hsp70 EGFP drosophila ++++ TATA Hermes 9xP2-hsp70 ECFP tribolium ++++ TATA piggyBac 3x(P2+PD)- EYFP grasshopper ++++ hsp70 TATA Himar1 6x(P2+PD- luciferase zebrafish ++++ hsp70 TATA piggyBac 3xP3-hsp70 EGFP chicken ++++ TATA MLV>VSVG 3xP3-hsp70 EGFP mouse ++++ TATA AcNPV 3xP3-hsp70 EGFP human ++++ TATA piggyBac 3xP3-hsp70 EGFP cockroach ++++ TATA mariner 3xP3-hsp70 EGFP honeybee ++++ TATA Hermes 3xP3-hsp70 EGFP mosquito ++++ TATA piggyBac 3xP3-hsp70 EGFP shrimp ++++ TATA Himar1 3xP3-Adeno EGFP lobster ++++ MLP TATA piggyBac 3xP3-Adeno EGFP termite ++++ MLP TATA AcNPV> 3xP3-Adeno EGFP bollworm ++++ VSVG MLP TATA piggyBac 3xP3-Adeno EGFP fire ant ++++ MLP TATA minos 3xP3-Adeno EGFP med. fly ++++ MLP TATA

Claims Text - CLTX:

13. The method according to claim 1, wherein the element comprises a plurality of Pax-6 binding sites and said Pax6 binding sites comprise twin-of-eyeless (**TOY**) binding sites.

Claims Text - CLTX:

15. The method according to claim 1, wherein the marker is a **fluorescent protein**.

Claims Text - CLTX:

16. The method according to claim 1, wherein the marker is a **fluorescent protein and said fluorescent protein is a green fluorescent protein**.

Claims Text - CLTX:

36. A method of making a transgenic insect comprising the steps of: (a) introducing into a genome of an insect a polytropic vector functional in nondipteran species and comprising a genetic construct comprising a transcriptional regulatory element operably linked to a heterologous gene encoding a marker, wherein the element comprises a binding site selected from a group consisting of a Pax-6 binding site and a Glass binding site and drives sufficient expression of the marker in insect genera transgenic of the construct to allow visual detection of the marker in photoreceptive cells or organs across said genera, and (b) selecting for transgenesis by visually detecting the marker in a photoreceptive cell or organ of the insect; wherein the marker is a **fluorescent protein,** and wherein the genetic construct is introduced into a vector selected from the group consisting of Himar1, piggyBac, Hermes, hobo, minos and mariner.

Claims Text - CLTX:

37. A polytropic vector functional in nondipteran insect species and comprising a transcriptional regulatory element operably linked to a heterologous gene encoding a marker, wherein the element drives sufficient expression of the marker in insect genera transgenic of the construct to allow visual detection of the marker in photoreceptive cells or organs, wherein the marker is a **fluorescent protein,** and wherein said transcriptional regulatory element and said heterologous gene are introduced into a vector selected from the group consisting of Himar1, piggyBac, Hermes, hobo, minos and mariner.

Other Reference Publication - OREF:

Plautz, J.D. et al. Green **Fluorescent Protein** and its Derivatives as Versatile Markers for Gene Expression in Living Drosophila Melanogaster, Plant and Mammalian Cells. Gene 173:83-87, 1996.*

Other Reference Publication - OREF:

Yeh, E. et al. Green **Fluorescent Protein** as a Vital Marker and Reporter of Gene Expression in Drosophila. Proceedings of the National Academy of Science USA 92:7036-7040, Jul. 1995.*

Other Reference Publication - OREF:

Zhuo, L. et al. Live Astrocytes Visualized by Green **Fluorescent Protein** in Transgenic Mice. Developmental Biology 187:36-42, 1991.*

US-PAT-NO: 6501002

DOCUMENT-IDENTIFIER: US 6501002 B1

TITLE: Disposable surface wipe article having a waste contamination sensor

DATE-ISSUED: December 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roe; Donald C.	West Chester	OH	N/A	N/A
Mirle; Anupama R.	Liberty Township	OH	N/A	N/A

APPL-NO: 09/ 491445

DATE FILED: January 26, 2000

PARENT-CASE:

This application is a continuation in part, and claims priority under 35 USC .sctn.120 to application Ser. No. 09/342,308 filed Jun. 29, 1999.

US-CL-CURRENT: 604/362; 422/56 ; 422/58 ; 422/61 ; 600/309 ; 600/310 ; 600/346 ; 600/362 ; 604/361

ABSTRACT:

Disclosed is a disposable surface wipe having a sensor which detects bodily waste contamination on a surface and which provides a signal indicating the presence of such contamination, desirably by detecting a component of the waste normally present in waste excreted by healthy individuals and not a component infrequently present in the waste due to special circumstances related to the health or other transient condition of the excreter. The signal provided by the sensor can be visible to a user of the article, and the article can include a substrate which incorporates the sensor. In a preferred embodiment, the article is a cleaning article which can efficaciously clean bodily waste contamination from a surface.

26 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

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Detailed Description Text - DETX:

The present invention is directed to a disposable surface wipe article having a sensor which detects bodily waste contamination on a surface contacted by the article and which provides a signal indicating the presence of such contamination. The term "disposable" is used herein to describe articles which generally are not intended to be laundered or otherwise restored or reused as an absorbent article (i.e., they are intended to be discarded after a single use and, preferably, to be recycled, composted, flushed, or otherwise disposed of in an environmentally compatible manner). The term "surface wipe article" is used herein to describe articles which are intended to be used for wiping either an animate surface such as the human skin, or an inanimate surface such as a floor, wall, furniture, faucet, doorknob or **toy** surface. For example, disposable surface wipe articles include facial tissues, toilet tissues, paper towels, dry wipes, and wet wipes such as hand wipes or baby wipes.

Detailed Description Text - DETX:

As described above, the biosensors of the present invention preferably detect biologically active analytes common to the type of bodily waste of interest. The signal from the sensor indicating detection of a given contaminant, for example a physicochemical signal generated by the biorecognition element or elements, is preferably communicated visually to the user or caretaker (i.e., via a color change visible to the human eye). Because, as discussed above, the articles of the present invention typically have a relatively short life before disposal, it is also desirable that the signal be provided relatively rapidly, preferably within less than about 30 seconds, more preferably within less than about 15 seconds, even more preferably within less than about 10 seconds of contact between the article and the target contamination (or analyte). Other embodiments may produce optical signals, which may require other instrumentation to enhance the signal. These include flourescence, **bioluminesence,** total internal reflectance resonance, surface plasmon resonance, Raman methods and other laser-based methods. For example, exemplary surface plasmon resonance biosensors are available as IBIS I and IBIS II from XanTec Analysensysteme of Muenster, Germany, which may comprise bioconjugate surfaces as biorecognition elements. Alternatively, the signal may be processed via an associated transducer, as described previously and further below. The signal may be qualitative (e.g., indicating the presence of the target biological analyte) or quantitative (i.e., a measurement of the amount or concentration of the target biological analyte). In such embodiments, the transducer may optionally produce an optical, thermal or acoustic signal. The signal may also be durable or transient, and the sensor may be adapted to detect and/or signal only concentrations of the contamination above a predefined threshold level, as described previously.

Detailed Description Text - DETX:

In biosensor embodiments wherein the biorecognition element does not produce signal which is easily discerned by a user of the article in which the sensor is employed (e.g., a color change), the sensor 40 may include a transducer in communication with the biorecognition element in order to corlvert the physico chemical signal from the biorecognition element into a usable signal to the wearer, caretaker, or component of the article (e.g., an actuator). Exemplary

transducers may include electrochemical transducers (including potentiometric, amperometric, and conductimetric transducers), optical transducers (including flourescence, **bioluminesence,** total internal reflective resonance, and surface plasmon resonance), thermal transducers, and acoustic transducers, as known in the art. A power source, such as a miniature 3 volt watch battery or printed thin film lithium battery, may be connected with the sensor 40 to provide any required power.

US-PAT-NO: 5931383

DOCUMENT-IDENTIFIER: US 5931383 A

TITLE: Self-illuminated drinking straw

DATE-ISSUED: August 3, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Palmer; William R.	Cameron Park	CA	N/A	N/A
Palmer; Stephen L.	Cameron Park	CA	N/A	N/A

APPL-NO: 09/ 017992

DATE FILED: February 3, 1998

US-CL-CURRENT: 239/33

ABSTRACT:

The instant invention provides for illuminated drinking straws which employ chemiluminescent mixtures as lighting sources. The illuminated drinking straw may be used with either hot or cold beverage such as water, fruit juices, soft drinks, coffees and teas, milk products or alcoholic beverages. A new and exciting drinking straw for amusement purposes is intended.

24 Claims, 23 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

---------- KWIC ---------

Brief Summary Text - BSTX:

Other non-incandescent, chemical means of producing light which may be advantageously employed include **bioluminescent** systems, or alternately, chemiluminescent systems based on dioxetanes or other chemiluminescent reagents. **Toy** and novelty applications which utilizes **bioluminescent** systems are taught in PCT-WO 97/29319.

Brief Summary Text - BSTX:

For example, if the chemiluminescent device is producing a generally green or yellow light and a red beverage is drawn up through the device, the red

beverage can filter out certain spectral portions of the chemiluminescent light to produce an apparent color change. Some dyes or coloring agents can be used not only as color filters but as fluorescers. A fluorescent dye functions by converting light of one wavelength to another wavelength. For example, blue light from a chemiluminescent device might be converted to red light by employing an appropriate fluorescer. This red light could be produced even if there was little or no red light emitted by the chemiluminescent device. U.S. Pat. No. 4,379,320 teaches to the use of secondary fluorescers similar to those described above. Of course, if such dyes or fluorescers were to be incorporated into a beverage it is necessary that they be completely safe for consumption. A variety of **fluorescent proteins** exist which may be used in this application, the use of said proteins being taught in PCT-WO 97/29319.

US-PAT-NO: 5840338

DOCUMENT-IDENTIFIER: US 5840338 A

TITLE: Loading of biologically active solutes into polymer gels

DATE-ISSUED: November 24, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roos; Eric J.	Grafton	MA	01519	N/A
Schiller; Matthew E.	Waltham	MA	02154	N/A

APPL-NO: 08/ 556130

DATE FILED: November 6, 1995

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This application is a continuation-in-part application of U.S. Ser. Nos. 08/276,462, filed Jul. 18, 1994, and 08/276,193, filed Jul. 18, 1994, now U.S. Pat. No. 5,603,955, now pending, and the entire contents of which are incorporated herein by reference.

US-CL-CURRENT: 424/488; 424/484 ; 424/486 ; 424/487 ; 514/944 ; 516/99

ABSTRACT:

Polymer gel networks loaded with biologically active solutes in a manner that solute activity is maintained and protected from thermal and/or chemical degradation while in the gel network are provided. The invention also provides for effects of modulating parameters for loading safe responsive gel networks using loading solutions containing phase separating polymers.

29 Claims, 25 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

---------- KWIC ---------

Brief Summary Text - BSTX:

It has now been discovered that biologically active solutes such as proteins, polypeptides, nucleoproteins, glycoproteins and lipoproteins can be loaded into safe, responsive crosslinked polysaccharide gel networks and demonstrate

activity after exposure to thermal and chemical challenges. Applications for loaded biologically active solutes into safe, responsive crosslinked polysaccharide gel networks include, but are not limited to, cosmetic formulations using papain, therapeutics such as peroxidase catalyzed antibacterials or oral hepatitis B vaccine, over the counter products using peroxidase catalyzed antibacterials in mouthwash or toothpaste that require protection of an enzyme from formulation excipients such as sodium dodedcyl sulfate, lactose intolerance medications, stabilization of molecular biology enzymes such as restriction endonucleases allowing for greater shipping and storage flexibility with respect to temperature, loading of enzymes into gel networks for use in blood panel diagnostics or other types of diagnostics including the use of **luciferase** and ATP (adenosine triphosphate) and the use of loaded enzymes for bioremediation including the clean up of hydrazine spills with specific hydrazine degrading enzymes.

Detailed Description Text - DETX:

It has now been discovered that biologically active solutes can be loaded into a safe, responsive crosslinked polysaccharide gel networks and demonstrate activity after exposure to thermal and chemical challenges. The biologically active solute may be a solute having a molecular weight greater than about 1,000 and is preferably selected from the group including proteins, polypeptides, nucleoproteins, glycoproteins and lipoproteins. Applications for loaded molecules into safe responsive crosslinked polysaccharide gel networks include, but are not limited to, cosmetic formulations using papain, therapeutics such as peroxidase catalyzed antibacterials or oral hepatitis B vaccine, over the counter products using peroxidase catalyzed antibacterials in mouthwash or toothpaste that require protection of an enzyme from formulation excipients such as sodium dodedcyl sulfate, lactose intolerance medications, stabilization of molecular biology enzymes such as restriction endonucleases allowing for greater shipping and storage flexibility with respect to temperature, loading of enzymes into gel networks for use in blood panel diagnostics or other types of diagnostics including the use of **luciferase** and ATP (adenosine triphosphate) and the use of loaded enzymes for bioremediation including the clean up of hydrazine spills with specific hydrazine degrading enzymes.

Detailed Description Text - DETX:

A number of applications for the responsive gels of the invention are listed in Gel Science, Inc. brochures "Gel Sciences, the leader in Engineered Response Gels", G001-2/94-10M; "Separations", S001-2/94-10M, and "Controlled Release", CR001-2/94-10M, which are included herein by reference. These applications include: 1) Separations, or reduction in the solvent level, of water or reduction in the water level of a number of products including protein, food protein, other food components; 2) Medical, pharmaceutical and diagnostic applications including electrophoresis, iontophoresis, free drug assay, spinal fluid diagnostics, assay, blood ultracentrifugation, cell culturing, wound dressing, exudate absorption and bacterial indicators; and 3) Toys, in which the **toy** needs to be biologically inert and safe.

Detailed Description Text - DETX:

The present invention also provides for the loading of biologically active solutes into safe, responsive crosslinked polysaccharide gel networks in a manner that the activity of the solutes are protected against exposure to thermal and chemical challenges. The compound is a biologically active solute and may be a solute having a molecular weight greater than about 1,000 and is preferably selected from the group including proteins, polypeptides, nucleoproteins, glycoproteins and lipoproteins. Applications for loaded molecules into safe responsive crosslinked polysaccharide gel networks include, but are not limited to, cosmetic formulations using papain, therapeutics such as peroxidase catalyzed antibacterials or oral hepatitis B vaccine, over the counter products using peroxidase catalyzed antibacterials in mouthwash or toothpaste that require protection of an enzyme from formulation excipients such as sodium dodedcyl sulfate, lactose intolerance medications, stabilization of molecular biology enzymes such as restriction endonucleases allowing for greater shipping and storage flexibility with respect to temperature, loading of enzymes into gel networks for use in blood panel diagnostics or other types of diagnostics including the use of **luciferase** and ATP (adenosine triphosphate) and the use of loaded enzymes for bioremediation including the clean up of hydrazine spills with specific hydrazine degrading enzymes.

US-PAT-NO: 5730321

DOCUMENT-IDENTIFIER: US 5730321 A

TITLE: Glow-in-the-dark water emitters

DATE-ISSUED: March 24, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McAllister; Todd	Encinitas	CA	92024	N/A
Frangos; John	Del Mar	CA	92014	N/A
Latz; Michael	San Diego	CA	92130	N/A

APPL-NO: 08/ 572243

DATE FILED: December 13, 1995

US-CL-CURRENT: 222/1; 222/394 ; 222/79

ABSTRACT:

The invention relates to methods, compositions and apparatuses, such as squirt guns and of the water emitting devices, that eject a flow of aqueous fluid having visible **bioluminescence,** providing "glow-in-the dark" emissions. The devices contain a population of a mechanical stress-stimulatable **bioluminescent** organisms, such as Pyrocystis species such as lunula and fusiformis, in suspension in a fluid. The fluid luminesces when ejected from an aperture of the device. The devices may also include a fluid flow generator, such as a mechanical pump, capable of inducing the flow of the fluid through the flow path and a trigger or valve capable of activating said fluid flow generator. In addition, the invention provides containers for viably storing populations of the **bioluminescent** organisms, methods and media for culturing and diluting the organisms, and kits of an emitter, a storage apparatus, suitable **bioluminescent** organisms, and culture media. The storage apparatuses may include a time-cycled light source capable of periodically illuminating the organisms and a solid or semisolid nutrient medium capable of supporting their viability and growth.

13 Claims, 5 Drawing figures

Exemplary Claim Number: 1,7

Number of Drawing Sheets: 5

---------- KWIC ---------

Abstract Text - ABTX:

The invention relates to methods, compositions and apparatuses, such as squirt guns and of the water emitting devices, that eject a flow of aqueous fluid having visible **bioluminescence,** providing "glow-in-the dark" emissions. The devices contain a population of a mechanical stress-stimulatable **bioluminescent** organisms, such as Pyrocystis species such as lunula and fusiformis, in suspension in a fluid. The fluid luminesces when ejected from an aperture of the device. The devices may also include a fluid flow generator, such as a mechanical pump, capable of inducing the flow of the fluid through the flow path and a trigger or valve capable of activating said fluid flow generator. In addition, the invention provides containers for viably storing populations of the **bioluminescent** organisms, methods and media for culturing and diluting the organisms, and kits of an emitter, a storage apparatus, suitable **bioluminescent** organisms, and culture media. The storage apparatuses may include a time-cycled light source capable of periodically illuminating the organisms and a solid or semisolid nutrient medium capable of supporting their viability and growth.

Brief Summary Text - BSTX:

Various colored/luminescent liquid/projectile dispensers are described in U.S. Pat. Nos. 5,415,151; 4,765,510; 2,629,516; 3,472,218. A chemiluminescent squeeze **toy** is described in U.S. Pat. No. 3,751,846; a chemiluminescent kite is described in U.S. Pat. No. 4,715,564; a phosphorescent **toy** gel is described in U.S. Pat. No. 5,308,546; a chemiluminescent game ball is described in U.S. Pat. No. 4,930,776; a chemiluminescent golf ball is described in U.S. Pat. No. 4,930,776; a **toy** having an impact-responsive luminescence is described in U.S. Pat. No. 5,138,535.

Brief Summary Text - BSTX:

Apparatuses for various scientific analyses relating to **bioluminescence** are described in U.S. Pat. Nos. 5,112,646; 5,141,869; 5,264,906; and 4,863,690. Latz et al. (1994) Limnol. Oceanogr. 39: 1424-1439 report on the excitation of **bioluminescence** by laminar fluid shear associated with simple Couette flow.

Brief Summary Text - BSTX:

In one embodiment, the apparatuses comprise a housing at least partially defining a fluid flow path which includes means for obstructing fluid flow, such as a fluid flow-restricting aperture. The housing is generally pressurizeable to induce the flow of the fluid along the flow path and through the aperture. The housing contains a fluid medium such as a buffered saline which comprises a population of one or more isolated mechanical stress-stimulatable **bioluminescent** organisms. The population is of size, concentration, activity, etc. such that it is capable of emitting mechanical stress-stimulated **bioluminescence** visible to an unaided human eye. A number of prokaryotic and eukaryotic microorganisms find use in the subject method, including Pyrocystis species such as lunula and fusiformis. In operation, a

productive flow of the fluid through the flow path is capable of subjecting the population to a mechanical stress sufficient to stimulate **bioluminescence** of the population visible to the unaided human eye. Frequently, the apparatuses additionally comprise a fluid flow generator, such as a mechanical pump, capable of inducing the flow of the fluid through the flow path and a trigger or valve capable of activating said fluid flow generator.

Brief Summary Text - BSTX:

The invention also provides apparatuses for viably storing populations of the **bioluminescent** organisms for use in the subject methods and emitters, methods and media for culturing and diluting the organisms, and kits comprising combinations of an emitter, a storage apparatus, suitable **bioluminescent** organisms, and media and/or media concentrate. The storage apparatuses may include a time-cycled light source capable of periodically illuminating the organisms and/or a solid or semisolid nutrient medium capable of supporting their viability and/or growth.

Detailed Description Text - DETX:

The invention provides methods and compositions relating to apparatuses for generating a **bioluminescent** fluid. The subject methods and compositions find a wide variety of aesthetic and industrial applications where an emitted stream of a mechanically-stimulatable **bioluminescence** is desired. Some examples include fountains or pools, festival water effects, water-powered rocket launchers, eco-friendly "fireworks". Industrial applications include any application where a night-visible targeting tracer is desired, e.g. night time forest fire water dumps.

Detailed Description Text - DETX:

In one embodiment, the subject emitters comprise a housing at least partially defining a fluid flow path. The nature of the housing is dictated largely by the application. In any event, the housing should be compatible with the selected **bioluminescent** microorganisms, e.g. should not provide acute toxicity, and generally provides a light shielding reservoir to contain the microorganisms prior to ejection or emission from the housing. Exemplary housings include or comprise squirt guns and other stream emmiters such as fountains and hoses; spray emitters such as spray bottles and cans, mist-making valves, nozzles, etc.

Detailed Description Text - DETX:

The housing provides means for obstructing fluid flow, which, in conjunction with the fluid flow, provides the microorganism population interacting with it, e.g. passing around, by or through the obstacle, with mechanical stress or strain sufficient to stimulate the population to the requisite **bioluminescence**. Exemplary obstacles include a fluid flow-restricting tube or aperture venting the housing to atmospheric pressure, a baffle, etc. A flow that stimulates

bioluminescence capable of detection by an unaided human eye is referred to as a productive flow. As used herein, visible to an unaided human eye means capable of being detected by an unaided human eye under optimal conditions, e.g. darkness.

Detailed Description Text - DETX:

The housing contains a fluid medium such as a buffered saline which comprises a population of an isolated mechanical stress-stimulatable **bioluminescent** organism. The contained fluid is aqueous and supports the physiology of the selected luminescent organism at least to the extent necessary to support the requisite mechanical stress-stimulatable **bioluminescence**. As such, the fluid generally comprises nutrients sufficient to support the physiology of the selected luminescent organism at least to the extent necessary to support the requisite mechanical stress-stimulatable **bioluminescence**. The population is of size, concentration, activity, etc. such that it is capable, in the targeted application, of emitting mechanical stress-stimulated **bioluminescence** visible to an unaided human eye. Generally, the cells are concentrated to at least three times, preferably at least ten times, more preferably at least 100 times, most preferably at least 1,000 times greater than found in natural, free populations. While cells may be concentrated from natural sources, they are preferably grown in in vitro culture. Concentrations are preferably achieved by membrane filtration. In any event, it is important to avoid co-concentrating toxic contaminants or raising the salinity or ionic strength beyond levels compatible with the requisite physiology of the organisms.

Detailed Description Text - DETX:

The choice of stress-stimulatable microorganism is dictated by the targeted application and convenience, such as rigor, e.g. temperature, fluid media, light and stress tolerances, growth requirements and rate, light wavelength/intensity/longevity, threshold sensitivity, cost, availability, etc. Preferred species can live in a variety of environments while their **bioluminescence** is dependent on a photosynthetic process. For many applications, preferred cells luminesce optimally on a circadian rhythm of 12 hours light/12 hours dark and it is possible to maintain their circadian rhythm and ability to luminesce on an a few, e.g. as little as one, two or three, hours of light per day. Furthermore, if the cycle is broken for a prolonged period (e.g. days), preferred cells will regain their normal luminescent properties after a few 24 hour light/dark cycles. Preferred cells may be cultured in simple media such as enriched sterile seawater and/or the solid agar media, such as those disclosed herein. In addition to shear stress sensitivity, preferred cells can be engineered to luminesce at a particular point in a fluid stream. Furthermore, natural signal decay and refractory periods can be utilized to generate desired effects. For example, perturbations to the flow may be introduced upstream of the exit aperture such that the housing and the flow path are also illuminated. Because of the finite decay time of the luminescence, the stream would still be visible after exiting the aperture. Conversely, the flow path and exit aperture can be designed such that the mechanical stimulation is minimized. In this case, the luminescence is delayed until either the stream impacts a solid surface or the flow

encounters sufficient air drag to trigger the cells.

Detailed Description Text - DETX:

A number of natural dinoflagellates and dinoflagellate-like marine microorganisms, including Protoperidinium, Noctiluca, Polykrikos, Gonyaulax, Ceratium, and particularly, Pyrocystis species such as lunula and fusiformis, have proven exceptionally well suited to the subject methods and devices, particularly in applications which preclude the use of potentially pathogenic or otherwise toxic microorganisms. In addition, a variety of microorganisms such as E. coli may be transformed with genes encoding proteins which effect **bioluminescence** and those transformants with mechanical stress-responsive **bioluminescence** selected, conveniently with automated fluorescence activated cell sorters (FACS).

Detailed Description Text - DETX:

The invention also provides apparatuses for viably storing populations of the **bioluminescent** organisms for use in the subject methods and emitters, methods and media for culturing and diluting the organisms, and kits comprising combinations of an emitter, a storage apparatus, suitable **bioluminescent** organisms, and media and/or media concentrate. The storage apparatuses are provided in several configurations. They may include a translucent cartridge or cartridge containing a time-cycled light source capable of periodically illuminating the organisms and/or a solid or semisolid nutrient medium capable of supporting their viability and/or growth. In one embodiment, the storage apparatus is a sealed and sterile liquid container with a transparent or translucent exterior housing. A hydrophobic filter which supports required gas exchange while maintaining a sterile environment. Alternatively, a cartridge having a light-opaque housing may be used. Such cartridges are fitted with an internal light source and timing device capable of maintaining the **bioluminescent** rhythm of the organisms. The storage cartridges can accommodate semi-solid or solid agar bound cells, e.g. shaped as a coil or pleated sheet, to maximize the light-exposed surface to volume ratio.

Detailed Description Text - DETX:

FIG. 1 shows a squirt gun 1 for use in the subject invention. The fluid comprising the **bioluminescent** organisms is added through a fluid inlet 2 into a mechanical dampening bladder 3 further containing a baffle system 4 to minimize stimulation prior to emission. The bladder 3 is contained within a rigid reservoir housing 5, which is pressurized by a pressurized gas chamber 6. A trigger 7 operates a valve 8 which connects the bladder 3 to a tube 9 which carries the fluid from the bladder 3 to the exit aperture 10.

Detailed Description Text - DETX:

FIGS. 2 shows a "magic wand" 20 for use in the subject invention. The fluid comprising the **bioluminescent** organisms is added through a fluid inlet 21 into

a fluid reservoir 22. A trigger 23 operates a valve 24 which connects a pressurized chamber 25 to the reservoir 22. Activating the trigger 23 opens the valve 24 causing the fluid in the reservoir 22 to move through a tube 26 which carries the fluid to the exit aperture 27. The exit aperture is designed such that the fluid is vaporized at the exit, creating a luminescent mist surrounding the tip of the wand.

Claims Text - CLTX:

a pressurizeable housing at least partially defining a fluid flow path comprising an aperture capable of venting said housing to atmospheric pressure, and containing a fluid, said fluid comprising a population of an isolated mechanical stress-stimulatable **bioluminescent** organism, said population capable of emitting mechanical stress-stimulated **bioluminescence** visible to an unaided human eye, wherein a productive flow of said fluid through said flow path is capable of subjecting said population to a mechanical stress sufficient to stimulate **bioluminescence** of said population visible to said unaided human eye wherein said apparatus is a squirt gun, a fountain, or a wand.

Claims Text - CLTX:

4. An apparatus for generating a luminescent fluid, said apparatus comprising: a pressurizeable housing at least partially defining a fluid flow path comprising means for obstructing fluid flow and containing a fluid, said fluid comprising a population of an isolated mechanical stress-stimulatable **bioluminescent** organism, said population capable of emitting mechanical stress-stimulated **bioluminescence** visible to an unaided human eye, wherein said obstructing means is capable of subjecting said population to a mechanical stress sufficient to stimulate **bioluminescence** of said population visible to said unaided human eye when said fluid moves through said flow path wherein said apparatus is a squirt gun, a fountain, or a wand.

Claims Text - CLTX:

7. A method for generating a luminescent fluid, said method comprising the step of moving a fluid comprising a population of an isolated mechanical stress-stimulatable **bioluminescent** organism, said population capable of emitting mechanical-stimulated **bioluminescence** visible to an unaided human eye, from a first pressurized region through a fluid flow path comprising an aperture to a second region at atmospheric pressure whereby said population is subject to a mechanical stress sufficient to stimulate **bioluminescence** of said population visible to said unaided human eye.

Claims Text - CLTX:

(a) a first apparatus for generating a luminescent fluid, said apparatus comprising a housing at least partially defining a fluid flow path comprising an aperture capable of venting said housing to atmospheric pressure, and

capable of containing a fluid, said fluid comprising a population of an isolated mechanical stress-stimulatable **bioluminescent** organism, said population capable of emitting mechanical stress-stimulated **bioluminescence** visible to an unaided human eye, wherein a productive flow of said fluid through said flow path is capable of subjecting said population to a mechanical stress sufficient to stimulate **bioluminescence** of said population visible to said unaided human eye;

Claims Text - CLTX:

(b) a second apparatus for viably storing said population of an isolated mechanical stress-stimulatable **bioluminescent** organism.

Claims Text - CLTX:

11. A kit according to claim 10 wherein said second apparatus comprises a time-cycled light source capable of periodically illuminating said population of an isolated mechanical stress-stimulatable **bioluminescent** organism.

Claims Text - CLTX:

12. A kit according to claim 10, wherein said second apparatus comprises a solid or semisolid nutrient medium capable of supporting the viability of said population of an isolated mechanical stress-stimulatable **bioluminescent** organism.

Other Reference Publication - OREF:

Latz et al. (1994) Excitation of **bioluminescence** by laminar fluid shear associated with simple Couette flow. Limnol. Oceanogr 39, 1424-1439.

US-PAT-NO: 5403221

DOCUMENT-IDENTIFIER: US 5403221 A

TITLE: Aerial **toy** with short axis rotational ascent and long axis rotational descent

DATE-ISSUED: April 4, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Savage; Daniel	San Jose	CA	95125	N/A

APPL-NO: 08/ 090712

DATE FILED: July 13, 1993

US-CL-CURRENT: 446/45; 446/36

ABSTRACT:

An aerial **toy** designed to maintain an aerodynamic profile during ascent by rotating around its shortest axis and having a shape which naturally predicts it to rotate around its longest axis during descent. The body of the invention consists of generally flat, thin, and lightweight, rigid construction (10) with an aerodynamic tapering edge (12). The body has a height that is longer than its width, and one half of the body height has more surface area than the other half.

13 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

---------- KWIC ---------

TITLE - TI:

Aerial **toy** with short axis rotational ascent and long axis rotational descent

Abstract Text - ABTX:

An aerial **toy** designed to maintain an aerodynamic profile during ascent by rotating around its shortest axis and having a shape which naturally predicts it to rotate around its longest axis during descent. The body of the invention consists of generally flat, thin, and lightweight, rigid construction (10) with

an aerodynamic tapering edge (12). The body has a height that is longer than its width, and one half of the body height has more surface area than the other half.

Brief Summary Text - BSTX:

Heretofore elastomer launched aerial toys have been primarily of two types. One type launches up and spins down in a spiral pattern: U.S. Pat. Nos. 4,904,219 to Cox (1990), 4,466,213 to Alberico (1984), 3,665,641 to Henderson (1972), 3,691,674 to Thompson (1972), 2,921,404 to Lescher (1960), 1,413,316 to Bradley (1922). The second type launches up and glides down: U.S. Pat. Nos. 5,013,277 to Hufeld (1991), 4,997,401 to Rose (1991). Previous aerial toys have been launched in a non-rotating fashion with a heavier or thickened end leading the ascent. Weighted areas are necessary to maintain a desirable aerodynamic orientation during flight. If one end of the device is not weighted more than the other, the **toy** will rotate during ascent exposing air retarding surfaces that reduce the **toy's** upward momentum. In addition, the same weights are necessary for the device to maintain a specific desired orientation for a gliding or spinning descent. The necessity of added weight to maintain aerodynamic orientation limits the maximum height of launch, and the time that the **toy** can stay airborne.

Brief Summary Text - BSTX:

A problem in general with launched aerial toys is that the weight of the **toy** directly affects the height to which the **toy** can be launched by the elastic band. A **toy** that is 10 grams cannot be launched to the same height as a **toy** that is 5 grams. Most aerial toys have a significant weight, over 5 grams, which limits the height they can be launched. Because the weight limits the maximum height the **toy** can be launched, the maximum time the **toy** can stay airborne is also limited. In addition, besides affecting the launch height, the weight also speeds the **toy's** descent to back to Earth.

Brief Summary Text - BSTX:

Many spinning aerial toys have been patented, all of these are of significant weight limiting their maximum height and time airborne. Some of the **toy** makers claim that their **toy** can easily be caught. The fact is unless the **toy** comes back almost directly to the operator, it will come down too fast to be caught by an average person. Due to a significant weight, the entire flight time of aerial spinning toys is on average about 6-8 seconds. By the time the operator determines which direction to run after the **toy,** 2 seconds have already passed. If the **toy** blows away from the operator more than 15.24 meters (50 feet), which is typical, the operator would have to run at speeds in excess of 24.14 kilometers/hour (15 miles/hour) to catch the **toy**. This is uncomfortably fast for most people. The amusement of catching these devices is only an option when the **toy** descends near the operator.

Brief Summary Text - BSTX:

To increase the time spent airborne, the **toy's** weight must be decreased. Unfortunately, the lighter the **toy** is, the more it will be affected by air resistance during ascent. Previously it has been extremely difficult to launch an aerial **toy** with a weight of under two grams (superlight) to significant heights (over 15.24 meters, 50 feet) because the force of the air resistance encountered during ascent is more than enough to stop the **toy's** upward momentum. Air resistance is encountered by the hooking mechanism that allows the **toy** to be launched, the weighted or thicker areas that help maintain proper orientation during launch, and by the winged surfaces that are necessary for spinning or gliding during descent.

Brief Summary Text - BSTX:

The solution of previous inventors to the air resistance problem during ascent has been to make the **toy** heavier so it will not be significantly affected by air resistance during the launch. This addition of weight limits the maximum height the **toy** can be launched and decreases the time the **toy** stays airborne. On another subject, previous aerial spinning toys have been too narrow and rod-like to incorporate a large variable surface area for amusing shapes, drawings, and pictures.

Brief Summary Text - BSTX:

Besides aerial spinning toys, many aerial gliding toys exist. These toys are subject to the same physics problems as the spinning toys. An additional problem with the aerial glider toys is that the same aerodynamic profile that allows the **toy** to be launched also causes the **toy** to return to Earth very quickly unless it happens to catch an updraft. In general, gliding toys return to Earth even faster than the spinning toys. Many attempts have been made for aerial toys to maintain an aerodynamic profile during launch, and then change the profile during the downward return to Earth. These toys which attempt to deploy air retarding surfaces at sometime in the flight contain moving parts that tend to lose their flexibility and break after repeated use: U.S. Pat. Nos. 4,836,817 to Corbin (1989), and 2,105,579 to Baylls (1938).

Brief Summary Text - BSTX:

(a) to provide an elastomer launched aerial **toy** that is rotated during ascent around its shortest axis providing a rotationally stable aerodynamic profile which allows a superlight object to be launched to heights previously unobtainable.

Brief Summary Text - BSTX:

(b) to provide an aerial **toy** that maintains an aerodynamic profile during ascent without the addition of weights.

Brief Summary Text - BSTX:

(c) to provide an aerial **toy** whose lack of weight allows it to be launched higher by the elastomer so it can remain airborne longer than previous elastomer launched toys.

Brief Summary Text - BSTX:

(d) to provide an aerial **toy** consisting of a generally flattened, thin body shape that is more aerodynamic than previous aerial toys allowing this invention to be launched higher than similar toys.

Brief Summary Text - BSTX:

(e) to provide an aerial **toy** that changes its aerodynamic profile to one of great air resistance during descent allowing the **toy** to float slowly back to Earth.

Brief Summary Text - BSTX:

(f) to provide an aerial **toy** whose generally flattened shape consists of a height that is longer than the width causing the **toy** to rotate around the longer axis during descent. This rotation causing the **toy** to fall slowly back to Earth.

Brief Summary Text - BSTX:

(g) to provide an aerial **toy** whose generally flattened shape consists of one half of the height having a greater surface area than the other half, causing a differential in air resistance that adds a spiraling motion to the rotation around the long axis.

Brief Summary Text - BSTX:

(h) to provide an aerial **toy** whose lack of weight allows the **toy** to descend slower than any previous **toy** of generally similar operation.

Brief Summary Text - BSTX:

(i) to provide an aerial **toy** that stays airborne long enough to be easily tracked and caught by the average person.

Brief Summary Text - BSTX:

(j) to provide an aerial **toy** consisting of a flexible outer edge to prevent injury to the **toy** and to any person or object hit from an accidental impact.

Brief Summary Text - BSTX:

(k) to provide an aerial **toy** which has no moving parts that would tend to become inflexible and break after repeated use.

Brief Summary Text - BSTX:

(l) to provide an aerial **toy** whose generally flattened surface area can be varied and cut into amusing shapes.

Brief Summary Text - BSTX:

(m) to provide an aerial **toy** whose generally flattened surface area allows for the addition of drawings and pictures to heighten the amusement of the **toy**.

Brief Summary Text - BSTX:

(n) to provide an aerial **toy** whose generally flattened surface will allow the addition of light altering or light producing materials.

Brief Summary Text - BSTX:

(o) to provide an aerial **toy** whose generally flattened surface can be cut to add holes allowing air to resonate and produce sound during ascent.

Detailed Description Text - DETX:

The interior rigid structure 10 has a surface height that is longer than its width and/or a difference between the amount of surface area contained in the top and bottom half of the invention (height being the longest axis as shown in FIG. 2). The height/width ratio is necessary for the **toy** to rotate around the long axis during descent. The difference in surface area is necessary for the **toy** to exhibit a spiraling motion in addition to the rotational motion around the long axis during descent as shown in FIG. 1.

Detailed Description Text - DETX:

The protective outer surface 12 can be translucent, transparent or opaque. In addition, light producing chemicals such as luminescent paint, or **bioluminescent** materials may be added to the outer surface for nighttime amusement.

Detailed Description Text - DETX:

The **toy** is launched by holding the dowel 16 steady with one hand, placing the **toy** between the two surfaces of the elastic band 14, as shown in FIG. 3, and pulling the elastic band and the **toy** down and slightly to the left if being released with the left hand as shown in FIG. 1. When the elastic band is released, it imparts a natural spin on the **toy** causing it to rotate counterclockwise if being pulled down with the left hand as shown in FIG. 1. This rotation gives the **toy** gyroscopic stability or rotational inertia during the launch. The gyroscopic stability allows the **toy** to maintain its orientation and its aerodynamic profile during ascent. As the **toy** continues upward, air resistance slows the initial rotation. When the rotation slows enough, the **toy** loses its gyroscopic stability and begins to become unstable. Because one axis of the **toy** surface is longer than the other, any perturbation of the **toy** around the shorter axis causes a rotation around the longer axis as shown in FIG. 1. This new rotation around the longer axis causes the **toy** to maintain an air retarding profile allowing it to descend very slowly. In addition, if there is a difference between the amount of surface area contained in the top and bottom half of the invention, as shown in FIG. 4, the **toy** will also exhibit a spiraling pattern caused by a difference in surface area subject to air resistance on each side of the **toy**. One half of the **toy** will be pushed by the air resistance more than the other causing the **toy** to maintain a spiral motion during descent as shown in FIG. 1. If the **toy** does not have a surface area difference between top and bottom half, it will still rotate around the longer axis and descend very slowly.

Detailed Description Text - DETX:

Thus the reader will see that the aerial **toy** of my invention overcomes the air resistance problems previously encountered in attempts to launch a superlight **toy** to significant heights, thus providing a higher flying, slower descending aerial **toy** than has been designed previously. In addition, because my invention can stay airborne longer than previous similar inventions, it can be tracked and caught more easily. Lastly, my invention has a variable surface area that can be cut into amusing shapes which can further be enhanced by the addition of colored designs, light altering materials, and light producing materials.

Claims Text - CLTX:

1. An aerial **toy** for projecting up into the air and free fall comprising:

Claims Text - CLTX:

2. An aerial **toy** of claim 1 wherein said first surface and second surface are covered by respective first and second covers of a flexible material, and said first and second covers are integrally formed with said tapered edge.

Claims Text - CLTX:

4. An aerial **toy** for projecting up into the air and free fall comprising:

Claims Text - CLTX:

a generally flat, thin body of a lightweight material having a planar first surface and a planar second surface defining a uniform thickness and weight throughout said body, said body further having a height longer than a width defining an elongated shape having a longitudinal axis and a lateral axis, said lateral axis being perpendicular to said planar first surface and said planar second surface, said lateral axis passing through a point central to said body, said aerial **toy** having at least four operational modes including:

Claims Text - CLTX:

5. The aerial **toy** of claim 4 wherein said first half of said body is in the shape of an oval, and said second half of said body is in the shape of a triangle intersecting said oval.

Claims Text - CLTX:

6. The aerial **toy** of claim 4 further comprising an elastomeric launching mechanism consisting of an elastomer, having means for engaging said body, attached to a rigid piece whereby a user may grasp the rigid piece in one hand and launch said body by said elastomer.

Claims Text - CLTX:

7. The aerial **toy** of claim 4 further comprising a symmetrically tapered edge of a flexible material extending continuously around the periphery of said body except for a single break adapted for allowing said launcher to engage said body during launching.

Claims Text - CLTX:

8. The aerial **toy** of claim 7 wherein said planar first surface and said planar second surface are covered by respective first and second covers of a flexible material, and said first and second covers are integrally formed with said tapered edge.

Claims Text - CLTX:

9. The aerial **toy** of claim 4 wherein said body has holes with means for producing sound.

Claims Text - CLTX:

10. The aerial **toy** of claim 4 further comprising lighting means for lighting said planar first surface and said planar second surface.

Claims Text - CLTX:

11. The aerial **toy** of claim 10 wherein said lighting means is chosen from the group consisting of **bioluminescent** chemicals, luminescent paint, and light emitting diodes.

Claims Text - CLTX:

12. The aerial **toy** of claim 4 further comprising light altering materials.

Claims Text - CLTX:

13. The aerial **toy** of claim 12 wherein said light altering materials are chosen from the group consisting of diffraction materials, iridescent materials, and fluorescent materials.